

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-276-1
Relating to Exemptions Under Section 27156
of the Vehicle Code

BORLA PERFORMANCE INDUSTRIES
FORD STAINLESS STEEL HEADER SYSTEMS

Pursuant to the authority vested in the Air Resources by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 and 39516 of the Health and Safety Code and Executive Order G-45-5;

IT IS ORDERED AND RESOLVED: That the installation of the Ford Stainless Steel Header Systems manufactured by Borla Performance Industries of 2639 Saddle Avenue, Oxnard, California 93030, have been found not to reduce the effectiveness of required motor vehicle pollution control devices, and therefore are exempt from the prohibitions of Section 27156 of the Vehicle Code for 1987-1993 model-year Ford Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine.

This Executive Order is valid provided that installation instructions for this device will not recommend tuning the vehicle to specifications different from those submitted by the device manufacturer.

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board, that adversely affect the performance of a vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board. Exemption of a kit shall not be construed as an exemption to sell, offer for sale, or advertise any component of the product as an individual device.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE BORLA PERFORMANCE INDUSTRIES'S FORD STAINLESS STEEL HEADER SYSTEMS.

No claim of any kind, such as "Approved by the Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communications.

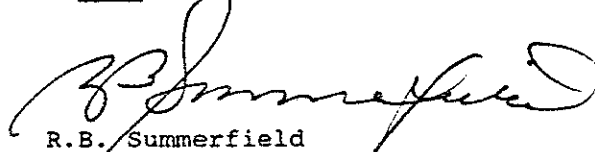
Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

"43644, (a) No person shall install, sell offer for sale, or advertise or except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor."

The Bureau of Automotive Repair will be notified by copy of this order.

Executed at El Monte, California, this 10th day of February, 1993.



R.B. Summerfield
Assistant Division Chief
Mobile Source Division

State of California
AIR RESOURCES BOARD

EVALUATION OF BORLA PERFORMANCE INDUSTRIES'
FORD STAINLESS STEEL HEADER SYSTEMS
FOR EXEMPTION FROM THE PROHIBITIONS OF VEHICLE CODE
SECTION 27156 IN ACCORDANCE WITH SECTION 2222, TITLE 13, OF THE
CALIFORNIA CODE OF REGULATIONS

February 1993

State of California
AIR RESOURCES BOARD

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CALIFORNIA CODE OF REGULATIONS

by

Mobile Source Division
State of California
Air Resources Board
9528 Telstar Avenue
El Monte, CA 91731-2990

(This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.)

SUMMARY

Borla Performance Industries of 2639 Saddle Avenue, Oxnard, California 93030, has requested an exemption for Borla Performance Industries' Ford Stainless Steel Header Systems from the prohibitions of Section 27156 of the California Vehicle Code. The exemption is requested for installation on 1987-1993 model-year Ford Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine.

Based on emission test results performed by Borla Performance Industries at an independent laboratory, the staff concludes that Borla Performance Industries' Ford Stainless Steel Header Systems will not adversely affect exhaust emission from the vehicles for which an exemption is requested.

The staff recommends that Borla Performance Industries be granted Executive Order D-276-1 allowing the installation of their Ford Stainless Steel Header Systems on those applicable 1987-1993 model-year Ford Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine.

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EVALUATION OF BORLA PERFORMANCE INDUSTRIES'
FORD STAINLESS STEEL HEADER SYSTEMS FOR EXEMPTION
FROM THE PROHIBITIONS OF VEHICLE CODE SECTION 27156 IN ACCORDANCE WITH
SECTION 2222, TITLE 13, OF THE CALIFORNIA CODE OF REGULATIONS

I. INTRODUCTION

Borla Performance Industries of 2639 Saddle Avenue, Oxnard, California 93030, has requested an exemption for Borla Performance Industries' Ford Stainless Steel Header Systems from the prohibitions of Section 27156 of the California Vehicle Code. The exemption is requested for installation on 1987-1993 model-year Ford Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine.

II. CONCLUSION

Based on emission test results performed by Borla Performance Industries at an independent laboratory, the staff concludes that Borla Performance Industries' Ford Stainless Steel Header Systems will not adversely affect exhaust emission from the vehicles for which an exemption is requested.

III. RECOMMENDATION

The staff recommends that Borla Performance Industries be granted Executive Order D-276-1 allowing the installation of their Ford Stainless Steel Header Systems on 1987-1993 model-year Ford Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine.

IV. FORD STAINLESS STEEL HEADER SYSTEMS DESCRIPTION

The Borla Performance Industries Ford Stainless Steel Header Systems are specifically designed for installation on 1987-1993 model-year Ford

Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine. The header system consists of exhaust manifolds and pre-catalyst piping. As with the original equipment manufacturer's (OEM) exhaust system, the function of the header system is to route exhaust gases from the two exhaust manifolds of the engine into a common pipe which then feeds to the catalytic converter (see appendix for drawings). Borla Performance Industries' family of Ford Stainless Steel Header Systems feature tubular exhaust primary pipes of 1-3/4" outside diameter for the 460 system and 1 1/2" outside diameter pipes for the 4.0 liter system. All 460 system primary tubes on each side join to a 2-1/2" diameter collector tube feeding into the precatalyst tubing. The 4.0 liter system tubes join into a 2" diameter collector tube. The precatalyst tubing, or Y-pipe, is constructed of collector sized tubing and connects to the catalyst. The oxygen sensor is located in the Y-pipe just before the catalyst. All tubes are comprised of 304 stainless steel.

Welded just before the collector in each primary tube are the Torque Increasing Venturis. The manufacturer claims Torque Increasing Venturis cause sufficient backpressure, thereby, enhancing the EGR operation.

The Ford Stainless Steel Header System is functionally identical to the cast iron exhaust manifolds and tubular steel collector pipes of the OEM exhaust system. The difference is the design dimensions of the Ford Stainless Steel Header System which optimizes the exhaust gas flow characteristics. The manufacturer claims Ford Stainless Steel Header Systems are designed to improve the flow of exhaust gases from the cylinder heads to the catalytic converter, thereby promoting improved volumetric and combustion efficiency.

The system operates in conjunction with the OEM computer controlled fuel injection and emission control systems already certified with the stock engines. The installation of the Ford Stainless Steel Header Systems is done by fitting only and requires no welding, modifications or adjustments to the emission control system. Borla Performance Industries supplies complete installation kits, including bolts, flanges, washers, and gaskets.

V. DISCUSSION OF THE FORD STAINLESS STEEL HEADER SYSTEMS

Borla Performance Industries requested an exemption for the installation of Ford Stainless Steel Header Systems on 1987-1993 model-year Ford Motor Co. heavy-duty trucks equipped with a 460 CID multipoint fuel injected engine and 1990-1992 model-year Ford Ranger and Explorer and Mazda Navaho equipped with a 4.0 liter V6 engine. To evaluate the emission impact of the Ford Stainless Steel Header Systems on these vehicles, the staff required Borla Performance Industries to test a 1992 Ford F250 heavy-duty truck equipped with a 460 CID engine in accordance with CVS-75 Federal Test Procedure (FTP). Testing consisted of one CVS-75 FTP with vehicle in stock (baseline) configuration followed by one CVS-75 FTP with the header system installed. Table 1 shows emission test results conducted at Milton Roy Company, Orange, California, on the 460 CID truck.

Table 1

CVS-75 Tests Conducted by Borla Performance Industries

	THC	NMOG	CO	NOx g/m
Baseline	0.874	0.652	9.166	7.174
Header Installed	0.884	0.685	8.841	7.830
Difference	+0.010	+0.033	-0.325	+0.656

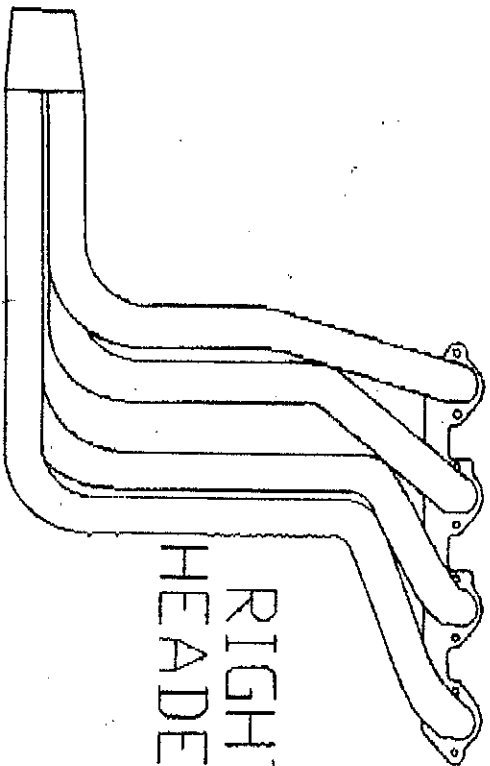
The differences between the device emission test results and baseline emission test results submitted by the applicant were within the allowed limits of 10% of baseline for HC, 15% of baseline for CO and 10% of baseline

for NOx as specified in the "Procedures for Exemption of Add-On and Modified Parts." Therefore, the installation of Borla Performance Industries' Ford Stainless Steel Header System did not have an adverse effect on exhaust emissions on the test vehicle.

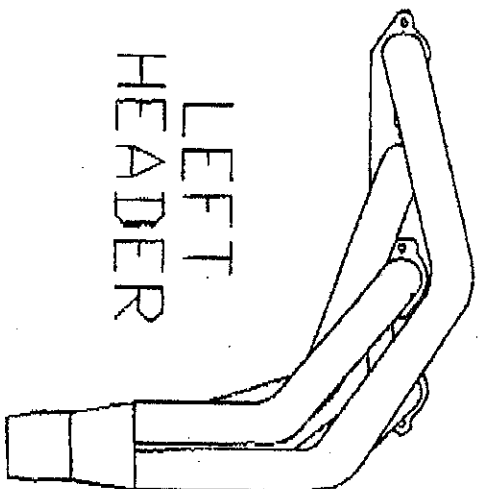
Borla Performance Industries submitted all required information and fulfilled all requirements for exemption.

APPENDIX

FORD 460 HEADER SET F¹⁵⁰₃₅₀ TRUCK



RIGHT
HEADER



LEFT
HEADER

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TOLERANCES:
DIM. IN INCHES

X.XXX" = +/- 0.010"
X.XX" = +/- 0.06"
X.X" = +/- 0.1"
ANGLES +/- 1°

DRN. BY: L
DATE: X
SCALE: 1:1
SHEET X OF X

DESCRIPTION
X-HEADER SYM.

MATERIAL:

PART NO:

X

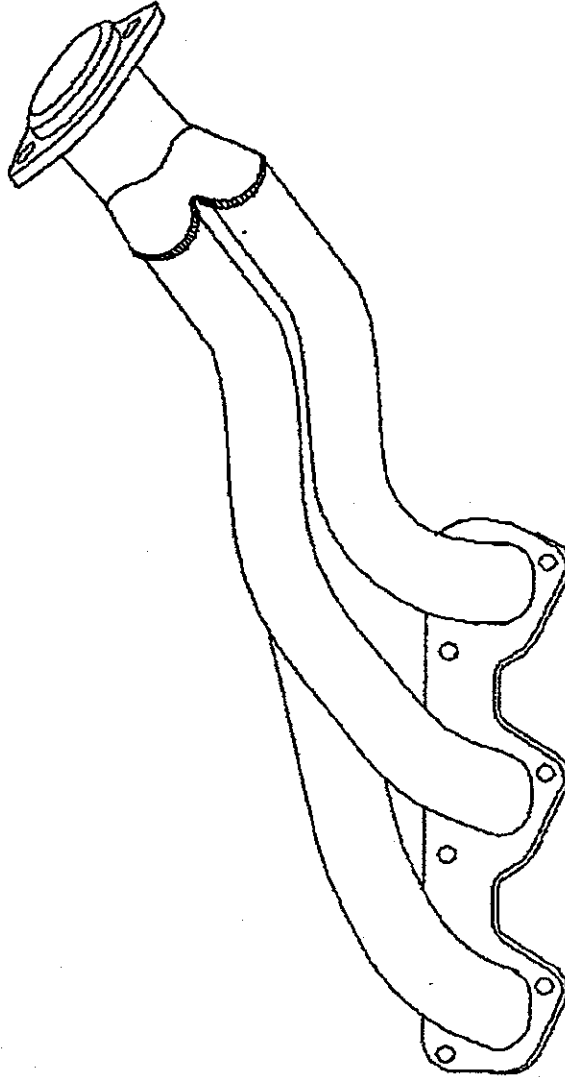
FORD F-TRUCK SERIES
SYSTEM DESCRIPTION

QTY	SYSTEM NO.	SHEET
1	X	X



- 1) Raise vehicle, remove o2 sensor from y pipe and unbolt y-pipe from converter and manifolds.
- 2) Lower vehicle.
- 3) Drain into clean container enough coolant to lower level to avoid spills when removing upper hose.
- 4) Remove throttle body shield and air duct from filter to throttle body.
- 5) Unplug wire harness on passenger side and unbolt bracket from Air Conditioner.
- 6) On drivers side, unbolt dipstick and remove carefully.
- 7) Unbolt and remove exhaust manifolds using 10mm--5 point socket. (They are very tight and good quality tools are a must). The lower back bolts are more easily reached through the wheel well using long extensions and swivel socket after being loosened.
- 8) Install headers using bolts and gaskets provided.
- 9) Check for interference with hoses or wiring.
- 10) On passenger side, push starter cable bracket as far down as possible to avoid burning wires.
- 11) Replace dipstick, radiator hose, air duct, heat riser, plugs and shield.
- 12) Raise vehicle and install new y-pipe using hardware provided and reinstall o2 sensor.
- 13) Refill coolant, start engine and check for leaks.





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EXPLORER & RANGER 40L HEADER 1	17024	
SYSTEM DESCRIPTION	QTY	SYSTEM NO.
		SHEET

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XX = +/- 0.1"
ANGLES +/- 1°

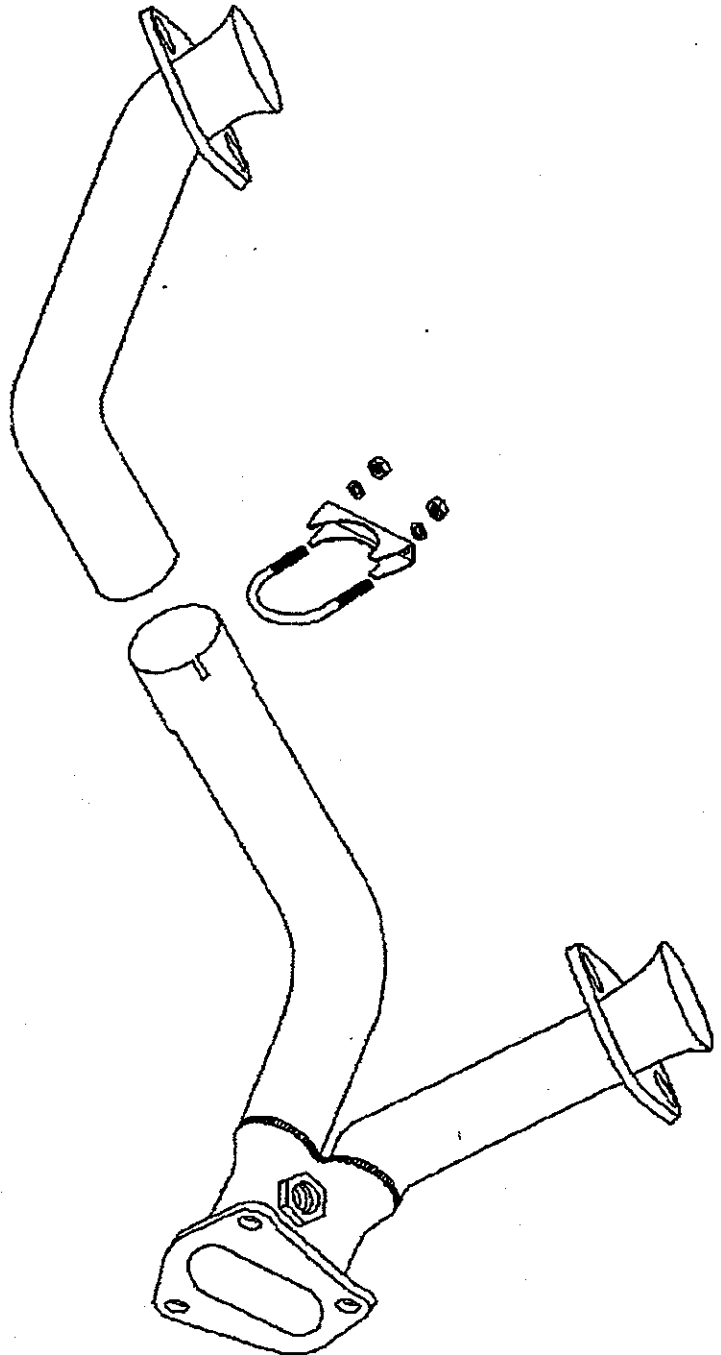
DRN BY: LEE
DATE: 6-30-92
SCALE: 1=4

SHEET X OF X

DESCRIPTION
HEADER

MATERIAL
T-304 SS

PART NO.
17024/R



BORLA INDUSTRIES

EXPLORER & RANGER 4.0L HEADER

1

17024

SYSTEM DESCRIPTION

QTY SYSTEM NO. SHEET

TOLERANCES:
DIM. IN INCHES

XXXX" = +/- 0.010"

XXX" = +/- 0.06"

XX" = +/- 0.1"

ANGLES +/- 1°

DRN BY:LEE

DATE:6-30-92

SCALE:1=4

DESCRIPTION
Y-PIPE

MATERIAL

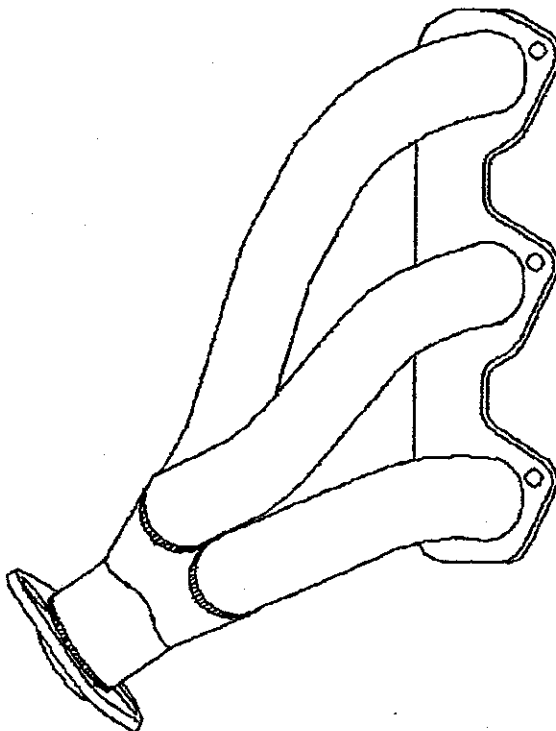
1-304 SS

PART NO.

42202

SHEET X OF X

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EXPLORER & RANGER 4.0L HEADER

1

17024

SYSTEM DESCRIPTION

QTY

SYSTEM NO.

SHEET

BORLA INDUSTRIES

TOLERANCES:
DIM. IN INCHES

X.XXX" = +/- 0.010"

X.XX" = +/- 0.06"

X.X" = +/- 0.1"

DRN BY: LEE

DATE: 6-30-92

SCALE: 1=4

SHEET X OF X

DESCRIPTION
HEADER

MATERIAL:

1-304 SS

PART NO.
17024/L

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